

10/716,748 Polcawich ARL 03-09

REMARKS

This amendment is submitted in response to the Office Action of June 29, 2006.

In summary, claims 1-22 have been cancelled and new claims 23 – 32 are submitted.

In the pending Office Action, the cancelled claims were rejected under references to Autrey (6,244,101 and 6,348,968), Oberhardt (5,110,727), Drzewiecki (6,286,360), Ueno (6,600,558), and Olsen (4,096,626). As understood, the Autrey references do not appear to either suggest or show an open-tube resonant cavity with buffer cavities on either side of the resonant cavity. The examiner apparently used the Oberhardt reference to suggest or teach buffer cavities. However, the buffer cavities 22, 26, and 24 of Fig. 14 of Oberhardt as described in columns 30 – 33 and specifically in column 30, lines 15 – 31 and cited by the examiner do not appear to be buffer cavities as described and claimed for the present invention. Oberhardt indicates that 22 is a sample receiving opening, 26 is a conduit, and 24 is a reaction space. The use of the Oberhardt device is described in columns 37 (lines 50 – 69) and 38 (lines 1 – 20) where a mixture of reagent and suspended magnetic particles are placed in a reaction volume and a sample is then placed in the reaction volume where the reaction is illuminated by a light source and then observed.

Further, the combination of Autrey, Oberhardt and Ueno is not clearly understood. The Ueno reference discloses a micro-fluidic cell for optical detection of gases where as noted in col. 8, lines 23 – 35, “A” corresponds to an absorbent-loaded channel, “B” corresponds to an ultraviolet optical path/microchannel, “C” corresponds to a gas inlet, “D” corresponds to a gas outlet, and “E” corresponds to a connecting channel. There

10/716,748 Polcawich ARL 03-09


does not appear to be a suggestion or teaching in the applied art of record of combining the structures of the references.

With regard to method claims 33 – 42, there does not appear to be any teaching of forming a resonant cavity with buffer cavities formed on either side of the resonant cavity in any of Autrey (6,244,101 and 6,348,968), Oberhardt (5,110,727), Drzewiecki (6,286,360), Ueno (6,600,558), and Olsen (4,096,626). Also, the method wherein the substrates are silicon, coated with one of titanium-gold or tin-gold alloy and further including the step of using temperature and pressure to form a gold-silicon or gold-tin eutectic bond between the substrates does not appear to be taught in the applied references. Further, the method step of acoustically coupling a microphone to the resonant cavity by the steps of depositing a piezoelectric thin film onto one of the top and bottom substrates, etching and patterning the thin film to create an acoustic sensor, and forming a port extending from the acoustic sensor into the resonant cavity do not appear to be taught or suggested by the applied references.

For the above reasons, it is believed that claims 33 – 42 are allowable and this case is in condition for allowance.

Please charge the fee for this Amendment and a Three Month Extension of Time filed herewith to the U.S. Patent Office Deposit Account number 19-2201 for the U.S. Army Materiel Command to cover the cost of the extension. Any deficiency or overpayment should be charged or credited to this numbered Deposit Account.

Dec. 28, 2006


William Randolph (703) 806-8254
Patent Attorney, Reg. No. 28,986
U.S. Army Materiel Command
9301 Chapek Road, Fort Belvoir, VA 22060-5527